

Claims:

1. A device for the processing of plastic waste, comprising a shredding device (9) arranged in a casing (1) and rotatable around an axis of rotation (2), which shredding device carries a plurality of knives (3) at its periphery, and an extruder comprising an extruder screw (4), with the casing (1) comprising a feed opening (5) for the supply of plastic waste to the shredding device (9) and a discharge opening (6) for the delivery of shredded plastic waste to the extruder, characterized in that the shredding device (9) and its knives (3), respectively, can be moved past the extruder screw (4) at such a small distance (h) that effective shear gaps are formed between the knives (3) of the shredding device (9) and a helix (4a) of the extruder screw (4).
2. A device for the processing of plastic waste according to claim 1, characterized in that the distance (h) between the knives (3) of the shredding device and the extruder-screw helix (4a) amounts to less than 10 cm, preferably less than 5 cm, and most preferably less than 3 cm.
3. A device for the processing of plastic waste according to claim 1 or 2, characterized in that the axis of rotation (2) of the rotatable shredding device (9) is disposed relative to the rotational axis of the extruder screw (4) at an angle (β) of $60 - 120^\circ$, preferably at about a right angle.
4. A device for the processing of plastic waste according to any of the preceding claims, characterized in that the shredding device (9) has a horizontal axis of rotation (2) and is arranged above the extruder.
5. A device for the processing of plastic waste according to any of the preceding claims, characterized in that the knives (3) disposed around the periphery of the shredding device are arranged in a helical manner so that they support the conveyance of synthetic material toward the discharge opening (6).
6. A device for the processing of plastic waste according to any of the preceding claims, characterized in that devices for supporting the conveyance of material toward the discharge opening (6), in particular helical grooves or webs (7) and/or air nozzles (8), are provided at the inner wall of the casing (1), which wall surrounds the shredding device.

7. A device for the processing of plastic waste according to any of claims 5 or 6, characterized in that the discharge opening (6) is arranged roughly at the mid-point of the length of the shredding device (9).
8. A device for the processing of plastic waste according to any of the preceding claims, characterized in that the rotational speed of the extruder screw (4) can be adjusted depending on the load of the shredding device (9), wherein the load can preferably be determined via pressure elements or the electric current consumption of a drive motor of the shredding device.
9. A device for the processing of plastic waste according to any of the preceding claims, characterized in that a pocket-like expansion is provided as a buffer storage for shredded plastic waste in the feed area of the extruder screw.
10. A device for the processing of plastic waste according to any of the preceding claims, characterized in that the shredding device (9) cooperates with a driven slide (10) in order to press the synthetic material against the knives (3), depending on the load on the axis of rotation (2) of the shredding device.
11. A device for the processing of plastic waste according to any of the preceding claims, characterized in that the extruder screw is widened to a larger diameter in the feed area and/or tapers conically toward the material-discharge end.
12. A device for the processing of plastic waste according to claim 1, characterized in that the axis of rotation (2) of the shredding device (9) runs in parallel to the axis of the extruder screw (4).